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SIDNEY FAY BLAKE
1892-1959

BERNICE G. SCHUBERT¹

Sidney Fay Blake, who died on the last day of 1959, left as a legacy to his colleagues what will become one of their most useful reference tools, his Geographical Guide to the Floras of the World — Part II². Although, in his last years, effort toward the completion of this work consumed the greatest part of Dr. Blake's time and energy, other long-standing pursuits were not neglected and his days were filled with interest and activity to the very end.

Sidney Blake was born on August 31, 1892, in Stoughton, Massachusetts, where he lived until he finished his graduate studies and where he returned for holidays regularly throughout his life. From his early youth he was keenly interested in Natural History, chiefly in birds until his later high school years, when an interest in plants became dominant. He then began his study of the flora of Stoughton, carried on intermittently throughout his life, and essentially completed for publication on his last visit to Massachusetts in September 1959. He entered Harvard College as an undergraduate in September 1908 and remained in some status at the University until his appointment as assistant botanist in the United States Department of Agriculture in 1918.

Since the details of his early years have been ably recorded elsewhere by the person best qualified to write of them, his

¹Taxonomist, Crops Research Division, ARS, USDA, Beltsville, Maryland.

²Part I published, with Alice C. Atwood as junior author, in 1942; Part II to be published in early 1961.

friend from early childhood and later his wife, Doris Holmes Blake³, I shall write here about a phase of Dr. Blake's life which he recorded himself. In letters to his two professors at the Gray Herbarium of Harvard University⁴, Benjamin Lincoln Robinson, Asa Gray Professor of Botany, and Merritt Lyndon Fernald, Fisher Professor of Natural History (Botany), from 1910 to 1918, many aspects of his personality and working habits become clear. My personal acquaintance with Dr. Blake began during my graduate study at the Gray Herbarium some twenty years ago. His friendly interest in my work continued in a most helpful fashion from that time until his death, including the years from 1952 on, when we were colleagues at the Plant Industry Station, Beltsville, Maryland. Of these years also I shall write briefly.

Sidney Blake entered college with an unusual knowledge of research methods and scientific procedures and early in his undergraduate career began to present papers for publication. In 1910, when a junior at Harvard and eighteen years old, he had three short botanical papers published. During this year too, he entered into his first controversy on botanical nomenclature, a subject with which, from interest or professional obligation, he was to become more or less involved for the rest of his life. At that time he had not clearly made the break from zoological to botanical nomenclature and was rather in favor of adapting some procedures of the former code to the latter rather than considering the two as distinct areas. In March 1910 he wrote to Dr. Robinson: "I am perfectly willing to insert that triliteral 'var.' and thus cut out the trinomial. My objections to the former arise, I suppose, principally from the fact that I learned nomenclature in the study of ornithology, and from that science the objectionable 'var.', or the Greek letter which frequently took its place, has been banished for twenty years and more, for the reason that it was absolutely no use . . . As to the difference in meaning of *variety*, *subspecies*, and

³Published in *Taxon* 9 (5): 129-141. 1960.

⁴These letters kindly loaned me by Dr. Reed C. Rollins, Director of the Gray Herbarium and the present Asa Gray Professor of Botany.

form, as employed in botany, I am in the dark. . . The calling of cristate forms of *Polypodium* and *Pellaea* *varieties* seems to be an abuse of the term. I should call them forms, as indeed is done in very many similar cases in the 7th edition of the Manual, in speaking of the plants, but not in giving their scientific designation. What you would call sub-species are probably those forms, designated as varieties, which are distinguished in Gray's Manual by heavy type



S. F. Blake — France, 1950

and separate paragraphing. If these plants really represent a different degree of differentiation why is it not expressed by the abbreviation *subsp.*? Although their distinctness is sufficiently obvious in the case of the Manual, when one quotes a name from that book of what value is the heavy type and separate paragraph in that volume going to be, if one uses the word 'var.' as is there done?" Unfortunately the reply to this letter is not extant.

The only letter to Blake of that period, of which we have a copy, is dated June 22, 1910, from Professor Fernald, for the editors of *Rhodora*. In this a note on a fern is rejected because "it has been the policy to decline articles in which

the author in the same article follows two distinct codes of nomenclature." The paper was not published, but other notes on ferns appeared in *Rhodora* the following year. So, he learned early, and from actual practice, the principles of the discipline he was to follow. There apparently was no question of the validity of his botanical discoveries, chiefly new records for his area, but of the form in which he presented his findings. His keen eye for collecting was well trained and his bibliographical interests initiated by the time he had finished his undergraduate studies, with honors, in 1912.

In the spring of 1913, his first year of graduate work, Blake made his initial visit to the herbarium of the Smithsonian Institution in Washington. There, during two months of study, he solved some of his botanical problems; but he found others: among some of the questions involved in Walter's *Flora Caroliniana* was one, concerning a name in the *Umbelliferae* that he discussed in a letter to Dr. Robinson on July 2nd. In an earlier note to Professor Fernald he had written of his first collecting trip in Virginia where he "Took any quantity of things new to me — *Aplectrum*, clusters of *Conopholis* with great swollen misshapen rootstocks, *Gillenia*, Red Birch, many *Carices*, several Butter cups, and any quantity of other things. Have been putting them up until I just now (2:50 A. M.) ran out of sheets so I believe I will go to bed."

Up to this time the letters are brief, concerned with specific problems, written only during temporary absences from the Gray Herbarium. In August 1913, during a collecting trip of about six weeks to the province of New Brunswick, in eastern Canada, his more or less weekly letters to Professor Fernald are full of interest in his collections, pleasure in his field experiences, and amusement at the details of living in a somewhat foreign atmosphere and the minor mishaps and calamities which occur to all collectors. From his first headquarters in Bathurst he wrote with some glee: "It seems that the Sunday before I arrived the priest had been telling his flock of some sort of agricultural expert, who was to appear soon in the district and travel about visiting the sick

and afflicted orchards, cornfields, and strawberry beds of the parish recalling them to a life of renewed fruitfulness, so I when I appeared . . . was hailed as the aforesaid Messiah, and I almost think that some of them still think I am really he, and shamefully shirking my work to loaf around the sea-shore. . ." He wrote in detail of his collections and probable new records, since Professor Fernald had a special interest in this area. *Lycopodium tristachyum* he considered the best of his early finds, because it had not been previously recorded north of northern Maine. From the Bathurst headquarters he made short trips by all kinds of transportation for several weeks, and noted his difficulties in some detail: "Monday the 25th I again risked my life by taking the Caraquet Ry. . . The train plugs along over a one-track road . . . yanking the cars ahead and then letting them sag back, . . . and if luck and the wind are with her she covers 26 miles in two hours." From Miscou he sent "scraps" of collections of *Atriplex*, *Salicornia*, and *Polygonum* which constituted records or were new to science. From Newcastle, N. B., he wrote of a visit to the Natural History museum in Chatham to check the herbarium, and included a list with many corrections of published records from the area which had been based on previous misidentifications of the specimens. A few hastily written postcards telling of the latest finds end the correspondence of this collecting trip which seemed to have been profitable and refreshing.

The correspondence recommenced on December 21, 1913, when Sidney Blake arrived in London to begin a period of study as a Sheldon Travelling Fellow of Harvard University, and continued until July 1915. During this period of world turmoil, in which he was himself somewhat enmeshed, he managed nevertheless to accomplish a rather phenomenal amount of botanical work, including solution of many monographic, floristic, and bibliographical problems. The facets of Blake's character most clearly revealed in these letters are his quiet confidence and mature approach to his research studies. He apparently had no hesitancy about the path he wished to follow, no doubt about his ability to cope with the problems as they arose,

and no hint of either false modesty or false pride in his efforts, only a simple satisfaction in each task as he accomplished it and an eagerness to take up the next one.

The first botanical questions to occupy Sidney Blake during his early months in England (from late December, 1913 to mid May, 1914), were related to the genera of which he had collected representatives the previous summer, among them *Atriplex*, *Salicornia*, and *Polygonum*. His conclusions concerning these and many other problems were published in the following years and form a part of his very sizeable bibliography. He enjoyed and profited from his association with the many British and European botanists and wrote at some length of their assistance. He was very careful, however, to draw his own conclusions and was not influenced to accept opinions he thought unsound or inadequate. Of Mr. Moss "who seemed very glad to help me with *Salicornia*" he later wrote (to M. L. Fernald, February 27, 1914): "I don't remember whether I wrote you that Moss had given me a fine series of types and typical specimens of his *Salicornias* — which nevertheless doesn't make me think any better of his new species. *S. disarticulata* is beautifully distinct, but the others as the English say are *rotters*. He doesn't impress one as being particularly cautious (he identified two of our things with his at first, only to reject them afterward) or especially careful about verifying details in a series of specimens." And later, in discussing Moss's forthcoming Cambridge British Flora (same letter) wrote: "Moss' idea of sections and subgenera is good I believe, and I shall not disagree with his ideas as to their nomenclature. However the plates, about which he is very enthusiastic, are mostly not at all good in their rendering of details, and the almost lack of measurements (especially bad when new forms are described as 'smaller in all their parts' &c.) is very unfortunate." He seems, however, to have enjoyed his visits with Moss and to have done some collecting during them, for he wrote in an early letter from Paris (to M. L. Fernald, Paris, May 15, 1914): "P.S. While visiting Dr. Moss at Easter I collected some *Caltha palustris* and had it cooked

and then ate it. It wasn't particularly attractive, and Mrs. Moss said it smelled very badly while it was being cooked, but it certainly had no ill effects. Shall have to try the American one when I get the chance, for I have never eaten that, and it may be that some varietal difference would appear in its reaction."

Many of Blake's letters gave detailed accounts of his solutions to the various problems he was attacking, with the help of one or another colleague or by study of types or more adequate collections. *Rosa blanda*, he wrote (January 11, 1914) "With Dr. Rendle's help I have succeeded in straightening out . . . *Cochlearia* has turned out very interesting also, and I have succeeded in identifying all but two or three of our forms. The very rounded-podded long-styled species, typified by F[ernald] & W[iegand] 3467, is a good n. sp., and #3468 is a splendid match for the types of the obscure *C. tridactylites* Banks, which seems to be a quite distinct species. *C. fenestrata* R. Br. is quite as interpreted in Dr. Robinson's revision. *C. danica* is a very distinct little species; one or two of Richardson's sheets labeled that are not it, and I do not believe it occurs in America. Our *C. officinalis* is certainly distinct from the ordinary European plant passing under that name, but a short-style plant also with pods like ours occurs rarely in the Herbaria from Europe. *C. groenlandica* seems to be either very rare or much confused. Am going very soon to the Linnean Herbarium to examine the types of these last two species, and shall then I hope be able to finish up this genus and write you the results."

Some of his time also was occupied with checking collections or comparing specimens for the botanists at the Gray Herbarium and part of it with becoming acquainted with London and its surroundings. He wrote to Professor Fernald (February 2, 1914) "Today I finished the Nfd. list [checking Newfoundland collections at Professor Fernald's request] at the British Museum and tomorrow start in with *Polygonum*, which will doubtless be hard enough. Some German or Swedish botanist has recently worked up *aviculare*, so that there will be some guideposts on the way. The

weather has been very springlike for the last week, and the robins, blackbirds, starlings, & misselthrushes have been tuning up, & last Saturday I heard the skylark's flight song at the Hendon aerodrome. I spend about one day a week sightseeing and the rest in botany, and am enjoying my trip immensely. Have mastered the English coinage, and can even understand a brakeman calling off stations in the underground — sometimes."

In the last letter before leaving for Paris (to B. L. Robinson, April 3, 1914) Blake discussed seven genera on which he made some studies, not all of them conclusive, for he wrote of the *Urtica* species "They are by far the most troublesome lot I have had to deal with so far excepting *Salicornia*, which is now left in very much the same condition as it was before, Moss' splitting being of very little help with our forms, and rather overdone as regards the English ones. As to *Capsella*, of which I brought over about forty sheets, I am afraid I won't be able to accomplish much. Nobody in England will confess to knowing the group, and without breeding them I doubt if any definite decisions could be reached."

In the first letter from Paris (to M. L. Fernald, May 15, 1914) he rather sums up the difficulties and then later expresses his great joy in his work: "(One of the troubles in England at present seems to be the amateur specialists, compared with whom Rafinesque and Rydberg are almost lumpers. *Rosa*, *Hieracium*, and *Rubus* are of course the worst labyrinths, but there are plenty of other genera that these people insist on splitting into the minutest of 'small species.') . . . I am ever so much obliged to you and Dr. Robinson for getting the fellowship renewed for another year. It was a thing I hadn't dared to hope for, but the time won't be any too long to look up the various questions that are coming up all the time. You will I hope have some more lists of species for me to look up. I enjoyed that Newfoundland work, getting in touch with the old American collectors and literature, and perhaps next fall you may want some of the La Pylaie plants looked up." In the same letter he writes with some amusement: "Last Saturday

night I went to the Folies-Bergères and was very much startled at the first thing thrown on the screen, which was *Drosera rotundifolia* in the act of capturing a fly! It was followed by *Pinguicula*, said to be 'common in North America', *Sarracenia flava* or one of the other slender southern species said to have 'originally come from Canada', and *Dionaea*; but the program after that was not particularly botanical! . . . and tonight in a restaurant in the Latin Quarter I had the pleasure of being taken for a Frenchman by an American girl and her mother . . . and being asked for the salt in worse French than my own. She must have been a little disconcerted when I asked it back in English a little while afterwards."

From Geneva in July there was a short note with answers to questions; from Berlin on August 12th to Professor Fernald, a postcard written in German script, and giving the first hint of world difficulties⁵: "I have been here for two weeks; how much longer I must remain I do not know. England has cut the German cable, so we can think what we please about the war; we have no news at all from America. But I must admit that Americans here in Germany are very well treated, in spite of what England has perhaps indicated. Miss Perkins, in the Museum, is very friendly, and I am very happy not to be entirely alone. I have enough to do in the Museum if I have to remain for a few months, but I hope that does not happen. I have been considering the idea of working with the genera *Viguiera* and *Flourensia*, as Dr. Robinson has suggested . . ."

On August 25th Blake had arrived safely in London and wrote to Professor Fernald what seems to me a most penetrating letter here quoted almost entirely:

"I don't think I was ever in my life as glad to get anywhere as I was to get home to London last Friday night, after two days of most uncomfortable traveling. Miss Perkins, who was very kind to me while I was at Berlin, had her sailing booked for 12 September, and at first planned to come with me and wait till that date in Rotterdam, but

⁵I am grateful to Mr. Paul G. Russell for this translation.

at the last moment changed her mind and decided to stay at Berlin till about 1 September. If she does so she may never get out, for German attacks in Holland are expected any day, and once they come there is absolutely no escape for Americans, or of course anybody else — for Italy is to be closed in a few days, when she will declare herself against Germany, without the shadow of a doubt. Then let the Cossacks get down in Berlin, as they will in the end, and an American's life is worth no more than a German's. There were 400 Americans and German-Americans on our special train, and every one of us I believe was progermanic. You see in Berlin they had filled us with tales of the Russians — who are not the vital issue in this war, but will be in the next, in the event of the allies' success in this struggle; and win they *must* — and it seemed to us that Europe was threatened with the plague of Tsardom. It is not — yet; but it is threatened with the merciless domination of a tyrannical Prussian militarism, which has already shown its true nature by demanding \$40,000,000 indemnity of a city it has just conquered, which according to a speech I heard in front of the Reichstagsgebäude intends to get five times the amount this time that it got in '71 out of France, and will 'erasieren' all France from the map in addition, and which engineered this war from the start with the view of capturing Belgium and Holland and what it could take of France. At least I don't see what other view is logical. Austria knew well enough that Servia would never submit to having Austrians sit in judgment in her courts; therefore she intended war; and it was clear enough that Russia must come in, since she would not permit the acquisition of more Slav territory by Austria. Austria would never have risked Russia without German (i.e. Prussian) backing, therefore in spite of her specious attempts at peace-making Germany must also have foreseen the war, and wanted it too, for without her support Austria would never have dared defy Russia. France of course had to come in with Russia, and England just as certainly once Germany attacked Belgium. Germany's absolutely wonderful systemization of everything, whose worst draw-

back is its destruction of initiative in the people, has carried it thru so far; their mobilization of millions of men, carried thru in eight days without a hitch, is the greatest thing of the kind in history. The deciding factor in the land struggle seems to me to be Russia, whose strength is a doubtful quantity; how much has she improved since 1905? France and the rest of them, England included, are almost certain to fall before Germany's army; if Russia does too, all is lost on land. The hope of the allies is to starve out Germany; if England can only prevent the importation of food, Germany must give in in time. But the conflict is one that may drag on for years."

This, the longest non-botanical statement in the whole Blake correspondence, with its clear perception and its telling prophecy gives a fair view of Sidney Blake's keen and clear thinking. He continued this letter with an account of his work in Berlin, mentioning particularly the Compositae in which he had become strongly interested and in which he had found some new species, *Simsia*, *Flourensia*, and *Viguiera*, as well as a wholly new genus, for all of which he left descriptions which were published in Germany in 1916. He felt that he had enough work to keep him busy for some time in England because "Personally I think the voyage to America is a bit risky at present with so many German cruisers scooting about."

In November 1914 (to M. L. Fernald, November 23) Blake was well settled at his work again in spite of war time inconveniences! "The only lights in the British Museum herbarium now are small ones in the bays, and about all they are useful for is card-cataloging. At Kew there are no lights except in the library, but then there never have been lights there in the herbarium. Any real work has to stop at about four o'clock now, which doesn't give a very long day." He followed with a summation of his work in so far as it affected the plants of the Gray's Manual area and continued ". . . should be very glad if you could let me know of some more species or groups that could be looked up to advantage over here, as I shall not be able to get back to Cambridge now until next fall."

In December (December 7) he sent to his classmate, Harold St. John, a full account of types of *Rumex* in the Linnaean herbarium, which had been requested, and closed rather wistfully "Wish you could spare the time to write a word about Ted Hill, [R. E.] Torrey, Cap [Weston] & the rest. I haven't heard a word from anybody for ages and ages."

During the winter of 1915 a large part of the time was occupied with work on the Compositae, the family on which he was to become the unquestioned American authority, succeeding his professor, B. L. Robinson, who had stimulated his interest in the group. In April he wrote, "I am sending you a paper embodying some of the results of the work I have been doing this winter on various genera of the Compositae . . . I should have preferred to publish these notes in somewhat different form after my return to America, but the appearance of Rydberg's first fascicle of Compositae in the North American Flora has warned me that to secure priority they must be published soon. Most of them are things which I have had under consideration for a considerable length of time, and I should not care to see them all gathered in by Dr. Rydberg." His next letter from England to Dr. Robinson (May 20) indicated his return of the proof of a paper on the Walter Herbarium (at the British Museum), discussed briefly the war as it was affecting his British friends, and closed with "Conscription seems a certainty of the immediate future, and with an upset in the Cabinet, anti-German riots (apparently over now) and weekly Zeppelin visits, we do not lack for excitement." On July 3, he wrote Professor Fernald that he was leaving for two weeks in Scotland "with Baker and two or three friends of his." With this the overseas correspondence ended.

The remaining letters of the Gray Herbarium period (to the end of 1918) when Blake was completing his work for the doctorate were infrequent and concerned chiefly with matters of the moment. They do not add significantly to those already cited. The letters, although presenting most clearly Blake, the young botanist, give a glimpse also of

the naturalist, interested throughout his life in ornithology and in later years in paleontology as well. Among the almost thirty species named for him are two fossil mollusca and a coral of his own collecting. His gentle sense of humor may be observed in his letters along with his delight in somewhat cryptic botanical jokes or puns. His interest in languages was lasting and stood him in good stead in his later bibliographical studies. His avocations, just as his work, seemed to have started from very early interests and were carried on continuously through the years. His style of writing, his handwriting itself, and his working methods changed scarcely at all through the years. His early taxonomic revisions of large genera are as useful as when first published and almost none have been superseded by more recent studies. They are an appropriate heritage from one of our outstanding colleagues.

From the time that Sidney Blake left Harvard to the day of his death he served as botanist in the U. S. Department of Agriculture. His published contributions during this long tenure were numerous, and his unpublished contributions in the form of summaries and reports were of great usefulness to his colleagues. His knowledge of the botanical resources of the Washington libraries was unequalled and his influence toward increasing them substantial. Although he was considerably occupied by routine chores, these were not all distasteful to him. He derived certain satisfaction from his ability to identify impossible scraps of specimens sent to the Department from all over the country, from clarifying fuzzy statements in manuscripts, and from correcting actual errors. He seemed to regret only the disproportion of time to his boundless nervous energy. His prestige in the Washington scientific community was high and he represented the Department in several capacities relating to his particular field. He was an official delegate to the 7th International Botanical Congress in Stockholm in 1950 and spent some months before and after the meetings at European libraries and herbaria. During a short excursion with some French botanists in the vicinity of

the Agricultural School at Grignon the photograph reproduced here was taken.

For the last twenty years of his life Dr. Blake's working time was largely devoted to bibliographical studies which culminated in his two important reference works — Geographical Guide to the Floras of the World — Part I, published in 1942, and Part II, carried through to galley proof at the time of his death, and soon to be published. Many of Blake's colleagues have expressed regret that he devoted so much time to this large task and so little to taxonomy in his later years, and have suggested that some one of lesser training could have done the bibliography equally well. Since I have had the privilege of doing the final checking on Dr. Blake's proofs for Part II I am keenly aware of the size of the effort involved, and tremendously impressed with the care and understanding on which it was based. I am completely convinced that no one who did not want to could have undertaken this work and no one less well trained could have accomplished it. It is my opinion that Dr. Blake was aware of the size of the task when he undertook it and convinced of the value of his contribution to botanists in the future. I do not think that he felt his efforts misspent, nor will future workers in his field.

It was a pleasant and rewarding experience to know and work with Sidney Fay Blake and to have had a small part in the completion of his major work.

VEGETATIVE REPRODUCTION IN CAREX LONGII AND C. VEXANS.

— A year or two ago, I reviewed the subject of vegetative reproduction in *Carex tribuloides* and *C. projecta*, giving additional data (Rhodora 61:294). The same tendency has been found to occur in two more species of *Carex* section *Ovales*: *C. Longii* and *C. vexans*. Specimens of these two sedges were collected by Dr. H. A. Gleason and myself on 28 April 1960, near Chassahowitzka Springs, Citrus Co., Florida, where several clumps were growing on the flat verge of a cart track along the edge of a wet hammock. Each plant which we examined bore several elongate, prostrate,

over-wintering culms with erect green shoots rising from the nodes. In a few instances the shoots had developed culms with fruiting heads. Incipient rootlets were generally present at the base of the shoots, but had not developed to the point of sustaining growth as independent plants.

For convenience, these collections have been assigned numbers in the records of George R. Cooley, and will be distributed by him, with appropriate label data: *Carex Longii* Mackenz. no. 7323.; and *C. vexans* F. J. Hermann no. 7324.

The latter species was first described by F. J. Hermann as recently as 1955. He cited only four specimens, all from Florida: two from Collier Co. and one each from Hendry Co. and Lake Co. (Rhodora 57:156). It may prove to be rather common in central Florida where within the last two years I have collected it at five widely separated stations. With such a paucity of material, the question of frequency of vegetative reproduction in this species must be deferred.

On the other hand, the former species, *C. Longii*, is relatively common, particularly in the coastal states from southern Maine to Florida, and is well represented in the New England Botanical Club Herbarium and the Gray Herbarium. Of 257 sheets examined, I found only one which displayed any evidence of a tendency to reproduce vegetatively. This is a specimen collected at Indian River, Florida by Ed. Palmer in 1874. It bears an over-wintering culm with prominent nodal fruiting shoots and rootlets, thus providing a second example from Florida, out of a total of thirteen specimens examined from that state. It may be significant that no examples from north of Florida were found, despite the fact that a scattering of collections bore *dead* culms of the previous year, presumably winter-killed.

— RICHARD J. EATON, LINCOLN, MASSACHUSETTS.

RECENT STUDIES IN
THE LEGUMINOUS GENUS STYLOSANTHES

ROBERT H. MOHLENBROCK

Since publication of the writer's "A revision of the Genus *Stylosanthes*" in 1957, a number of additions and corrections have been brought to my attention. This paper is an effort to incorporate this material into a supplement to the genus *Stylosanthes*.

In "A Revision of the Genus *Stylosanthes*", twenty-five species and one subspecies were recognized. Four additional species are presented in this paper, with one being new to science. Several new localities increasing the geographical ranges of some species are given.

Stylosanthes biflora (L.) BSP.—A further listing by states and counties of this United States species is given. ALABAMA: DeKalb, Lee, Marshall, Mobile, Shelby. ARKANSAS: Baxter, Clark, Craighead, Cross, Dallas, Drew, Franklin, Garland, Hot Springs, Jefferson, Johnson, Lincoln, Logan, Miller, Prairie, Pulaski, Saline, Sharp, Union, Yell. DELAWARE: Newcastle, Sussex. FLORIDA: Columbia, Dade, Duval, Escambia, Hillsborough, Jefferson, Lake, Marion, Putnam, Volusia, Washington, Woodson. GEORGIA: Bulloch, Cobb, DeKalb, Fannin, Gwinnett, Madison, Oconee, Stephens, Union, Whitfield. ILLINOIS: Franklin, Gallatin, Hardin, Jackson, Johnson, Lawrence, Macoupin, Monroe, Peoria, Pope, Randolph, St. Clair, Saline, Union. INDIANA: Clark, Crawford, Daviess, Floyd, Harrison, Knox, Lawrence, Perry, Posey, Spencer, Washington. KANSAS: Cowley, Montgomery. KENTUCKY: Bell, Calloway, Carter, Clinton, Edmonson, Estill, Grayson, Lewis, Logan, Lyon, McCreary, Meade, Nelson, Rockcastle, Wayne, Whitley. LOUISIANA: Rapides Parish. MARYLAND: Frederick, Montgomery. MISSISSIPPI: Harrison, Jackson, Stone. MISSOURI: Barry, Benton, Butler, Callaway, Camden, Cape Girardeau, Cedar, Cole, Crawford, Dade, Dent, Douglas, Dunklin, Franklin, Gasconade, Greene, Henry, Hickory, Howell, Iron, Jasper, Jefferson, Lawrence, Lincoln, McDonald, Maries, Marion, Miller, Newton, Oregon, Pike, Polk, Ralls, Reynolds, Ripley, St. Charles, St. Francois, St. Louis, Shannon, Stoddard, Stone, Taney, Vernon, Wayne, Webster, Wright. NEW JERSEY: Burlington, Camden, Gloucester, Hunterdon, Middlesex, Ocean, Salem. NEW YORK: Nassau. NORTH CAROLINA: Cherokee, Cumberland, Edgecombe, Harnett, Henderson, Hoke, Orange, Rowan, Swain, Wayne. OKLAHOMA: Caddo, Choctaw, Comanche, Johnston, McCurtain, Payne, Woods. PENNSYLVANIA: Bedford, Buck, Lancaster, Montgomery, Philadelphia, Schuylkill, York. SOUTH CAROLINA: Aiken, Anderson, Dillon, Georgetown,

Laurens, Oconee, Pickens. TENNESSEE: Bledsoe, Blount, Campbell, Carroll, Cheatham, Cocke, Coffee, Cumberland, Davidson, Fayette, Franklin, Grainger, Hardeman, Henderson, Hickman, Madison, Marion, McNairy, Montgomery, Morgan, Rhea, Roane, Rutherford, Scott, Sevier, Van Buren, Warren, Wayne. TEXAS: Bastrop, Bowie, Brazos, Dallas, Fayette, Harris, Lee, Nacogdoches, Parker, Travis, Walker, Waller. VIRGINIA: Bedford, Smyth. WEST VIRGINIA: Jackson, Jefferson, Lincoln, Summers, Wyoming.

Stylosanthes fruticosa (Retz.) Mohlenbrock. — Through the suggestion of Dr. J. Léonard of Laboratoire de Botanique Systématique, Bruxelles, additional specimens of this entity were examined from Africa and the East Indies with the result that two species should be recognized, instead of only *S. fruticosa*. African material, with loment beaks 1.5-3.0 mm. long and with evenly pubescent stems, should be known as *Stylosanthes mucronata* Willd. East Indian material, with loment beaks 3.5-4.0 mm. long and with unilaterally pubescent stems, should be called *Stylosanthes fruticosa* (Retz.) Alston.

The nomenclatural treatment follows:

Stylosanthes mucronata Willd. Sp. Pl. 3: 1166. 1800, ex char.

Stylosanthes bojeri Vog. in Linnaea 12:68. 1838, ex char.

Stylosanthes aprica Span. in Linnaea 15:192. 1841, ex char. (T: Burke & Zeyher 404).

Stylosanthes setosa Harv. in Harv. & Sond. Fl. Cap. 2:227. 1862, ex char.

Stylosanthes flavicans Baker in Oliv. Fl. Trop. Afr. 2:156. 1871. (T: Kotschy 425).

Known in Africa from Abyssinia, Angola, Kenya, Madagascar, Mozambique, Nigeria, Senegal, Southern Rhodesia, Sudan, Tanganyika, and the Union of South Africa.

Stylosanthes fruticosa (Retz.) Alston in Trimen, Handb. Fl. Ceylon 6:77. 1931.

Hedysarum hamatum acc. Burm. f., Fl. Ind. 167. 1768, non L.

Arachis fruticosa Retz., Obs. Fasc. 5:26. 1791.

Known from Ceylon, East Indian islands, and southern India.

Stylosanthes ingrata Blake in Proc. Biol. Soc. Wash. 39:51. 1928. (T: S.J. Record s.n.!). — Through an oversight, *S. ingrata* was listed in synonymy under *Stylosanthes guyanensis* ssp. *guyanensis* by Mohlenbrock (1957), with the statement that it is without fruit. On the contrary, mature fruits are known which place *S. ingrata* phylogenetically near *S. montevidensis*.

Stems herbaceous, usually branched from the base, to 60 cm. long, puberulent, becoming glabrate below. Leaflets lanceolate, acute, with a subulate tip, glabrous or nearly so on both surfaces, mostly 1-nerved; terminal leaflet to 20 mm. long, 4 mm. broad; petioles 4-7 mm. long, puberulent to glabrous, the rhachis 1-3 mm. long; sheath of the stipules usually slightly longer than the teeth, strigose or occasionally with

a few bristles. Spikes linear-oblong, to 10 mm. long, 5- to 8-flowered; outer bracts trifoliolate, the inner unifoliolate, the sheath usually strigose, sparsely bristly, slightly longer than the teeth, 5- to 7-nerved; outer bracteole 1, oblong, to 4.0 mm. long, ciliate near the apex; axis rudiment none; inner bracteoles 2, 2.0-2.5 mm. long. Calyx tube to 3.5 mm. long, the lobe 1.5-2.5 mm. long. Standard obovate, scarcely clawed, to 8 mm. long; wings auriculate below and shortly appendaged within; keel petals falcate. Loment 5-6 mm. long, 1.5-2.0 mm. broad, very faintly reticulate; only the upper articulation fertile, 2.0-3.0 mm. long, glabrous, the lower abortive, pilose; beak slender, uncinate, 1.0-1.5 mm. long, pilosulous or nearly glabrous, slightly more than half as long as the upper articulation.

Known only from the type collection from Vaca Falls District, British Honduras, collected by S. J. Record in February, 1926, and deposited in the U. S. National Herbarium.

Stylosanthes suborbiculata Chiov. Ann. di Bot. 13:381. 1915. (T. Paoli 239!). — At the time of "A Revision of the Genus *Stylosanthes*," the writer stated (1957) under Excluded Species on page 347 that the type for *S. suborbiculata* Chiov. had not been seen and therefore was excluded from the systematic treatment.

Since that time, the type, which is on deposit in FI, has been studied, and *S. suborbiculata* proves to be a distinct species.

Stems herbaceous to somewhat woody at the base, much branched, spreading to suberect, to 40 cm. long, glabrous or puberulent, at least when young. Leaflets suborbicular, obtuse to slightly retuse at the apex, the terminal to 6 mm. long and 5 mm. broad, the lateral slightly smaller, glabrous on both surfaces, with 3-4 pairs of prominent veins; petioles 3-5 mm. long, glabrous to puberulent, the rhachis 1-2 mm. long; stipular sheaths 5-8 mm. long, 3- to 5-nerved, sparsely setose, the subulate teeth 2-4 mm. long. Spikes narrow, 5-8 mm. long, 2- to 5-flowered; outer bracts trifoliolate, inner bracts unifoliolate, the sheaths stipuliform; outer bracteole 1, 2.5-3.0 mm. long, ciliate near the tip; axis rudiment none; inner bracteole 1, 2.0-2.5 mm. long, ciliate. Calyx tube 2-3 mm. long, the lobes 2-3 mm. long, ciliate. Standard suborbiculate, 4-6 mm. long; wings 3-5 mm. long, auriculate, spurred within at the base; keel petals 3-4 mm. long, falcate. Loment faintly reticulate, 2.0-2.5 mm. broad; only the upper articulation of the loment fertile, 2.5-3.0 mm. long, glabrous; beak uncinate or nearly circinate, 2.5-3.0 mm. long.

This species is known only from the type collection of Paoli (#239) from Somaliland.

A NEW SPECIES FROM BRITISH GUIANA. — While studying a recent set of collections of *Stylosanthes* from the United States National Herbarium, a heretofore undescribed species from British Guiana was discovered. It belongs to Section *Stylosanthes*.

Stylosanthes suffruticosa Mohlenbrock, sp. nov.

Herba suffruticosa erecta ad 1 m. alta caulinibus ramosis glabris vel puberulis tuberculato-setosis. Foliola elliptico-lanceolata supra glabra subtus parce punctulata glabra vel setosa nervis 3-5 — gemmatis; foliolo terminali ad 10 mm. longo, 2.5 mm. lato; foliolis lateralibus ad 8 mm. longis, 2.5 mm. latis; petiolo 3-5 mm. longo glabro vel puberulo; rhachide 0.5-1.5 mm. longa; stipulae striatae vagina 3-6 mm. longa setosa vel tuberculato-setosa vel glabrata processibus subulato-mucronatis setosis 2-4 mm. longis. Spicae densae oblongoideae floribus 3-10; bracteis unifoliolatis vel trifoliolatis stipuliformibus vagina puberula vel tuberculato-setosa 3-6 mm. longa nervis 5-7; bracteola exteriore 1, 2.0-3.5 mm. longa apice ciliata; axis rudimento ad 4 mm. longo, villosa; bracteola interiore 1, 2.0-3.5 mm. longa apice ciliata. Calycis tubus 3-5 mm. longus lobis 1.5-2.5 mm. longis. Corolla lutea; vexillo suborbiculato 4.0-6.5 mm. longo; alis falcatis 3.0-4.5 mm. longis; carina 3.0-4.5 mm. longa. Lomentum circa 2 mm. latum valde reticulatum, articulo superiore 2-3 mm. longo puberulo, articulo inferiore 1.5-2.5 mm. longo villosa, rostro circa 2.0-2.5 mm. longo parce uncinato.

Stylosanthes suffruticosa is distinguished from *S. hamata* by its tuberculate bristles, from *S. tuberculata* by its two fertile articulations and its longer beak, and from *S. mucronata* of Africa by its smaller leaves and narrower spikes.

The specific epithet is derived from the subshubby growth habit.

This species is known only from Lethem, Rupununi District, British Guiana.

BRITISH GUIANA: Rupununi: Lethem, H. S. Irwin 550 (US, holotype), 618 (US, paratype).

Additional locality records for other species of *Stylosanthes* follow: *S. angustifolia* Vog. BRITISH GUIANA: Rupununi.

S. hamata (L.) Taub. UNITED STATES: Florida: Duval County.

S. viscosa Sw. UNITED STATES: Texas: Counties of Aransas, DeWitt, Kenedy, Nueces, Willacy. — SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE.

LITERATURE CITED

MOHLENBROCK, ROBERT H. 1957. A revision of the genus *Stylosanthes*. Ann. Mo. Bot. Gard. 44:299-355.

AN UNUSUAL HYBRID HELENIUM¹

JULIAN A. STEYERMARK

While botanizing in Missouri during 1957, I collected a most puzzling specimen of *Helenium*. Although it most closely resembled *H. flexuosum* Raf., it possessed at the same

¹Work on this paper was completed during the period when the author received grants-in-aid (G 5628, 7117) from the National Science Foundation.

time the yellow disk corollas and other characters associated with *H. autumnale* L. More detailed examination of the plant indicates that it may be a putative hybrid between *H. flexuosum* and *H. autumnale*, shedding additional light on the matter of the hybrid origin of *H. flexuosum*, as discussed by Dr. Rock in his latest revision of the vernal species of the genus (Rhodora 59: 101-116; 128-158; 168-178; 203-216. 1957).

In his key to species, Rock emphasizes the "predominantly quadrimerous" disk corollas of *H. flexuosum* with "4 lobes and 4 stamens" as well as the red-brown disk of that species (p. 149). In his description of *H. flexuosum* the "predominantly 4-merous" corolla "(both lobes and stamens)" is again emphasized by italics, and it is stated (pp. 111-112) that "all the vernal species except *H. flexuosum* are characterized by a 5-lobed apex. In *H. flexuosum*, however, the number of lobes is 4, rarely 5. This 5- and 4-lobed condition is further reflected in the anthers. In those taxa with a 5-lobed corolla, the number of anthers is 5 and in *H. flexuosum* the number of anthers is only 4."

Another character of importance is found in the ray-florets, which in *H. flexuosum* are completely devoid of either stamens or style, and the achenes of these ray florets are abortive and sterile. In contrast, in *H. autumnale* the ray florets are styliferous and the disk corollas are 5-lobed. So far as the color of the disk is concerned, the lobes of the disk corollas of *H. flexuosum* are red-brown, whereas in *H. autumnale* they are yellow with a yellow-green to greenish-yellow corolla-tube. Dr. Rock states (p. 112) that "Occasionally, some specimens of *H. flexuosum* will have a sordid-yellow disk, rather than red-brown, but such specimens are easily placed on other characters."

The Missouri specimen which appears to represent a hybrid between *H. flexuosum* and *H. autumnale* bears the following data: Howell County: open margins of dried sink-hole pond on south side of road N; T 25 N, R 9 W, sec. 1, 1½ mi. east of Pomona, October 19, 1957, Steyermark 86003. This collection has the following characters of *H. autumnale*: 1) 5-merous disk corollas; 2) styliferous ray

florets; 3) yellow disk corollas. The characters of *H. flexuosum* present in the specimen are the following: 1) short stature; 2) stouter and more elongated peduncles bearing relatively few flower heads in a more corymbosely branched inflorescence; 3) more broadly winged stem from base of stem to beginning of floral branches; 4) disk higher than broad and of larger size (in *H. autumnale* usually shorter or more hemispheric); 5) larger and longer disk florets; 6) longer pappus scales which are longer awned; 7) leaf shape with few, broad, short dentations and leaf apex long-attenuate; 8) achenes with longer and denser pubescence than in *H. autumnale*.

From the above, it should be noted that, although the Missouri specimen possesses a greater number of characters which result in its greater resemblance to *H. flexuosum*, nevertheless the three characters of *H. autumnale* which the specimen possesses are highly significant. It should also be noted here that the Missouri specimen further differs from typical *H. flexuosum* in having 1) the disk corollas 3.5-4 mm. instead of 2-3 mm. long, and 2) the pappus scales broadly ovate instead of lanceolate. In *H. autumnale* the pappus scales are ovate and vary from short-awned or merely short-cuspidate to long-awned. In *H. flexuosum* the pappus scales are lanceolate and, according to Dr. Rock (p. 212) "usually acute at the apex so as to form an awn." In the Missouri specimen the pappus scales are definitely awned.

Although it is true that most specimens of *H. flexuosum* show 4-merous disk flowers, it was noted during an examination of material of this species in the University of Missouri Herbarium that some Missouri specimens (*Drouet 793, Drouet 832, Jeffrey* from Boone Co., and *Steyermark 16195* from Putnam Co.) possess both quadrimerous as well as pentamerous disk flowers. At the Howell County locality where the putative hybrid specimen of *Steyermark 86003* was found, both *H. flexuosum* and *H. autumnale* were observed, although the former was the dominant species.

It is interesting to note here that Dr. Rock (p. 116) considers *H. flexuosum* as a species occupying a position morphologically "intermediate between the vernal species of the

southeastern United States and the annual-biennial species of *Helenium* in Texas and Mexico on one hand and the extremely widespread species *H. autumnale*, on the other hand." Although the possession of neutral and sterile ray-florets in *H. flexuosum* is shared by other vernal flowering species of *Helenium*, nevertheless *H. flexuosum* "does not conform to the rest of the vernal species in the remaining characters." (p. 116), and is considered "quite anomalous in many respects, as far as the other species of the section are concerned." (p. 135). One of the eight aberrancies possessed by *H. flexuosum*, as listed by Dr. Rock (p. 136), is that of the flowering period, which, in this species, extends in its range from March through November.

Based upon its "morphological anomaly and ecological diversity" Dr. Rock suggests (p. 136) that "*H. flexuosum* is probably of hybrid origin, long-standing in time . . ." In his hypothetical evaluation of the possible parentage of the hybrid origin of *H. flexuosum*, he indicates his choice of parents as 1) a species of the Section *Tetradus* "probably the plant known as *Helenium elegans*" and 2) a vernal species, such as *H. brevifolium* or *H. campestre*, indicating *H. campestre* as the more logical choice. He believes (p. 138) that "the origin of the section *Leptopoda* [in which *H. flexuosum* is placed] has been from some styliferous-rayed member of *Helenium* or pre-*Helenium* stock."

The present Missouri collection, discussed above, would indicate hybridization between *H. flexuosum* and *H. autumnale* in portions of the geographical range of these two species. It would also indicate that *H. autumnale* may have played a role as one of the parental sources of *H. flexuosum* to account for the occasional occurrence of pentamerous, yellow-lobed disk corollas and styliferous ray florets of hybrid stock.

Specimens of this collection have been deposited in the Gray Herbarium of Harvard University and in the University of Missouri Herbarium. — INSTITUTO BOTANICO DEL MINISTERIO DE AGRICULTURA Y CRIA, CARACAS, VENEZUELA, AND RESEARCH ASSOCIATE, MISSOURI BOTANICAL GARDEN.

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